



INTEGRATED PRODUCT DEVELOPMENT INTEGRATED PRODUCT FRAMEWORK

**SMC/AXD RFPSO
8 OCTOBER 1997**

INTEGRATED MANAGEMENT SYSTEM BRIEFING



- INTRODUCTION

- INTEGRATED PRODUCT DEVELOPMENT (IPD)

- IPD OBJECTIVES

- ACQUISITION APPROACH

- RFP/PROPOSAL/CONTRACT

- INTEGRATED MANAGEMENT FRAMEWORK (IMF)

- IMP FEATURES AND ATTRIBUTES

- IMS FEATURES AND ATTRIBUTES

- IPT TOOLS

- SUMMARY



INTRODUCTION

- INTEGRATED PRODUCT DEVELOPMENT (IPD)

“SYSTEMATICALLY EMPLOY A TEAM OF FUNCTIONAL DISCIPLINES TO INTEGRATE AND CONCURRENTLY APPLY ALL NECESSARY PROCESSES TO PRODUCE AN EFFECTIVE AND EFFICIENT PRODUCT THAT SATISFIES CUSTOMER’S NEEDS”

PROCESS AND RESOURCES TO PROVIDE RAPID, COST EFFECTIVE, CUSTOMER FOCUSED PRODUCT DEVELOPMENT

- INTEGRATED MANAGEMENT FRAMEWORK (IMF)

DISCIPLINED, ORGANIZED MANAGEMENT SYSTEM FOR ALL CONTRACT ACTIVITIES

MISCONCEPTIONS ABOUT IPD



Why I don't need an IMP/IMS

- Required only of ACAT programs
- Too big and burdensome for the small dollar value of our program
- Contractor(s) will spend substantial B&P and program budget generating and maintaining the 12" thick document
- Doesn't apply on a services contract
- Management tool, not a technical tool
- Doesn't apply to technology programs
- Doesn't apply to R&D efforts (can't plan ahead with leading edge R&D)

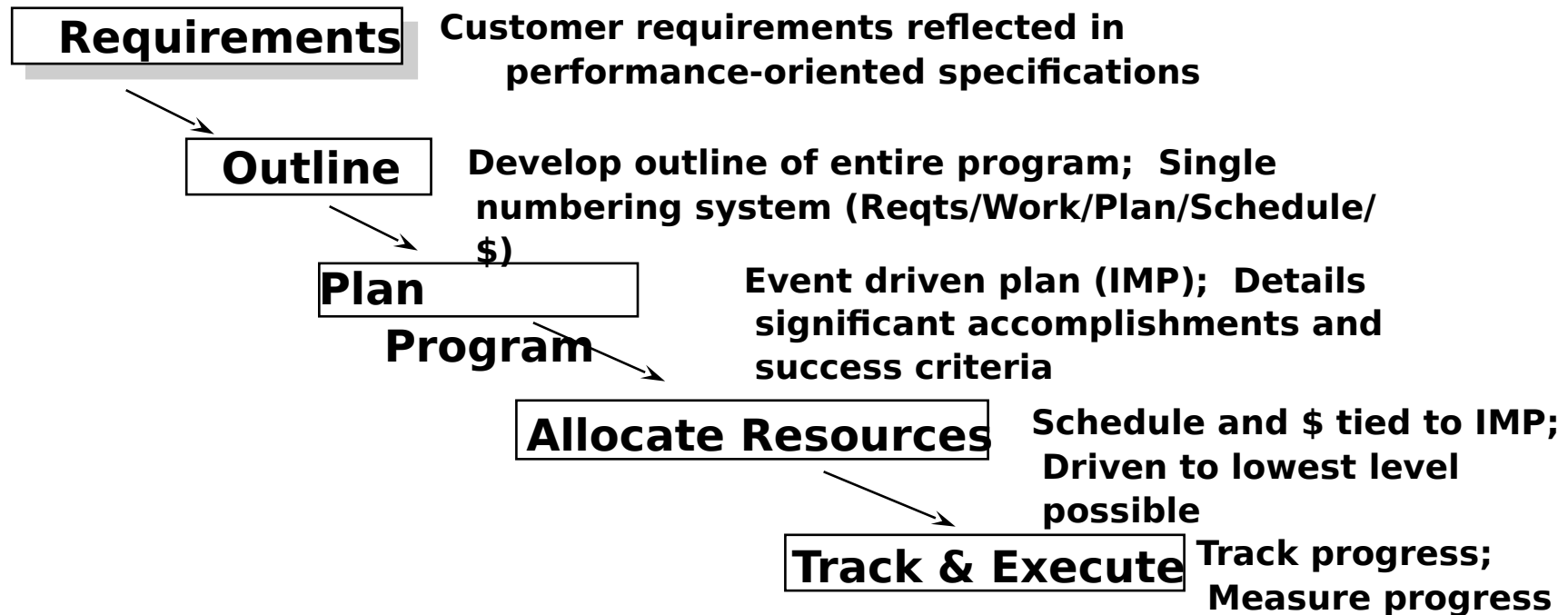
NOT TRUE !

RANGE OF PROGRAM TYPES AND SIZES APPLYING IPD



- GPS IIF - \$2B, 25-yr navigation system sustainment
 - GPS CSEL - \$39M, 5-yr radio/nav system development and production
 - Shield/ALERT (CTTP) - 5-yr operational system sustainment services (task order)
 - GPS NAVWAR - ~\$4M, 1 yr studies and support (PRDA solicitation)
 - Added to existing DSCS SLEP contract with Lockheed-Martin
 - and many more
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- Now recommended for all SMC acquisitions

FRAMEWORK FOR IPD (Acquisition)

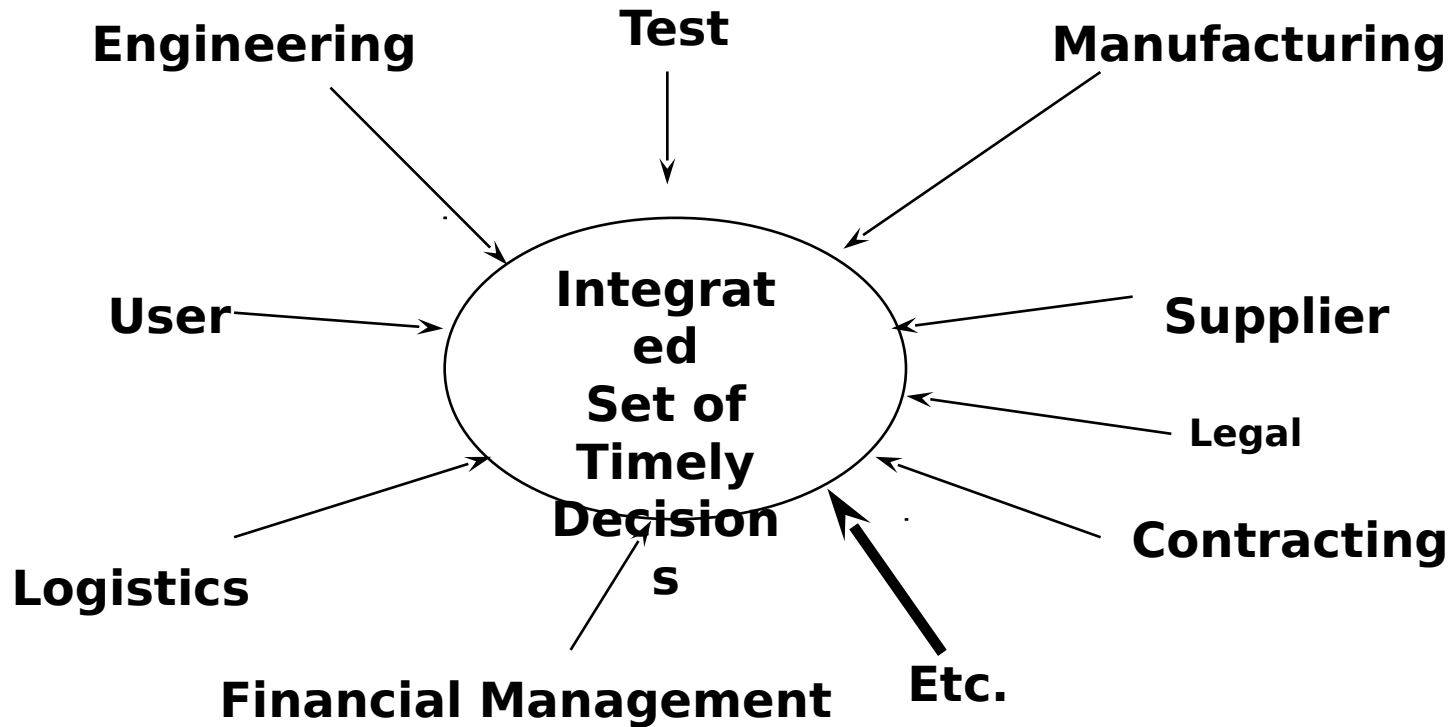




INTEGRATED PRODUCT DEVELOPMENT (IPD)

- KEY FEATURES
 - PRODUCT FOCUS
 - CROSS FUNCTIONAL TEAMING
 - EMPOWERMENT
 - UPFRONT PLANNING
 - SEAMLESS IPD TOOLS
 - INTEGRATION THROUGHOUT THE LIFECYCLE
- BENEFITS
 - REDUCED TIME TO FIELD SYSTEM
 - REDUCED SYSTEM COST
 - IMPROVED QUALITY
 - PROGRAM IS EASIER TO MANAGE
- IMPLEMENTATION
 - CULTURAL CHANGE
 - COOPERATION AND COMMUNICATION

RIGHT PEOPLE, RIGHT PLACE, RIGHT TIME, MAKING RIGHT DECISIONS



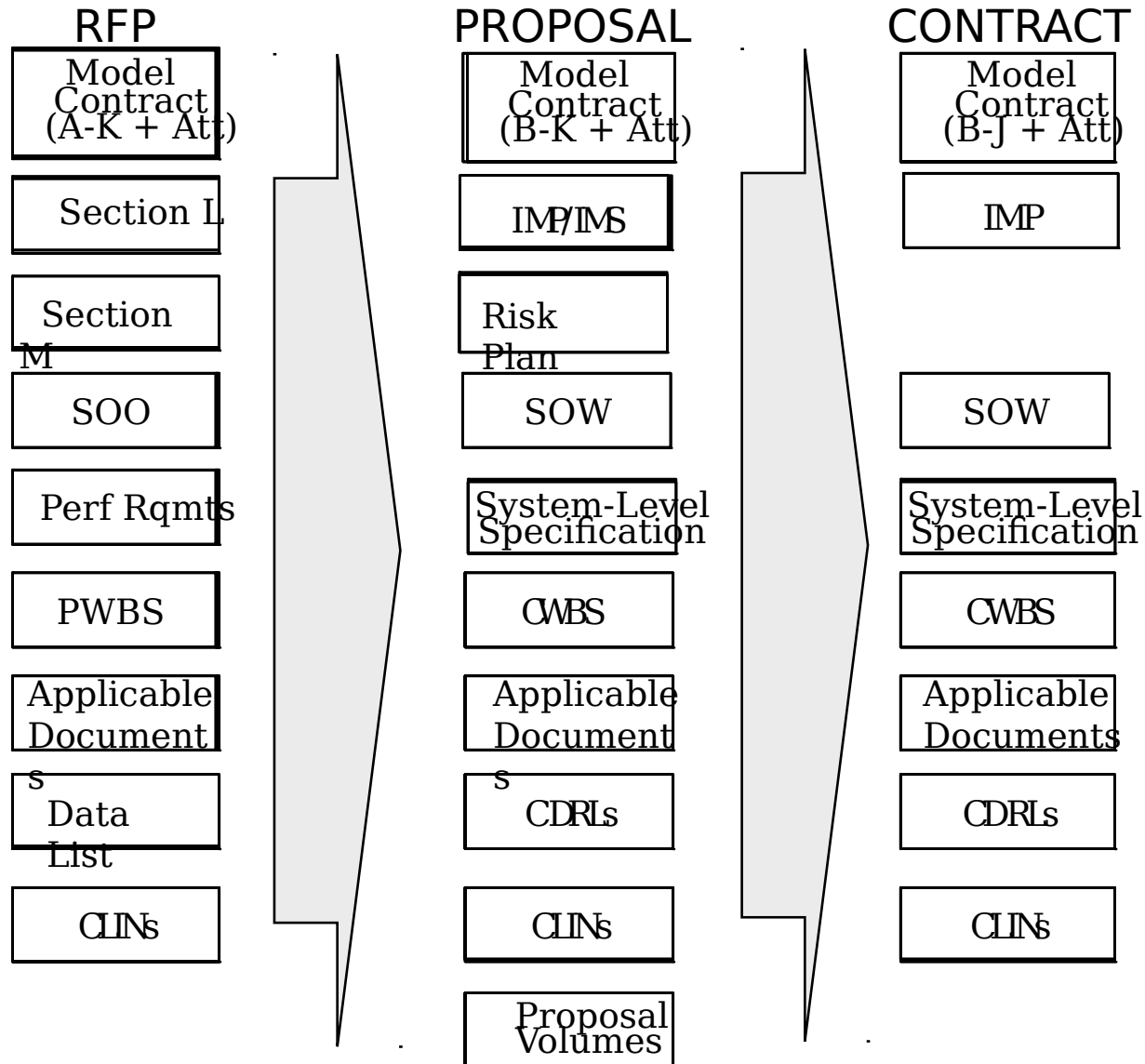
**Life cycle decisions based on
combined inputs of all team members**



IPD AND IMF OBJECTIVES

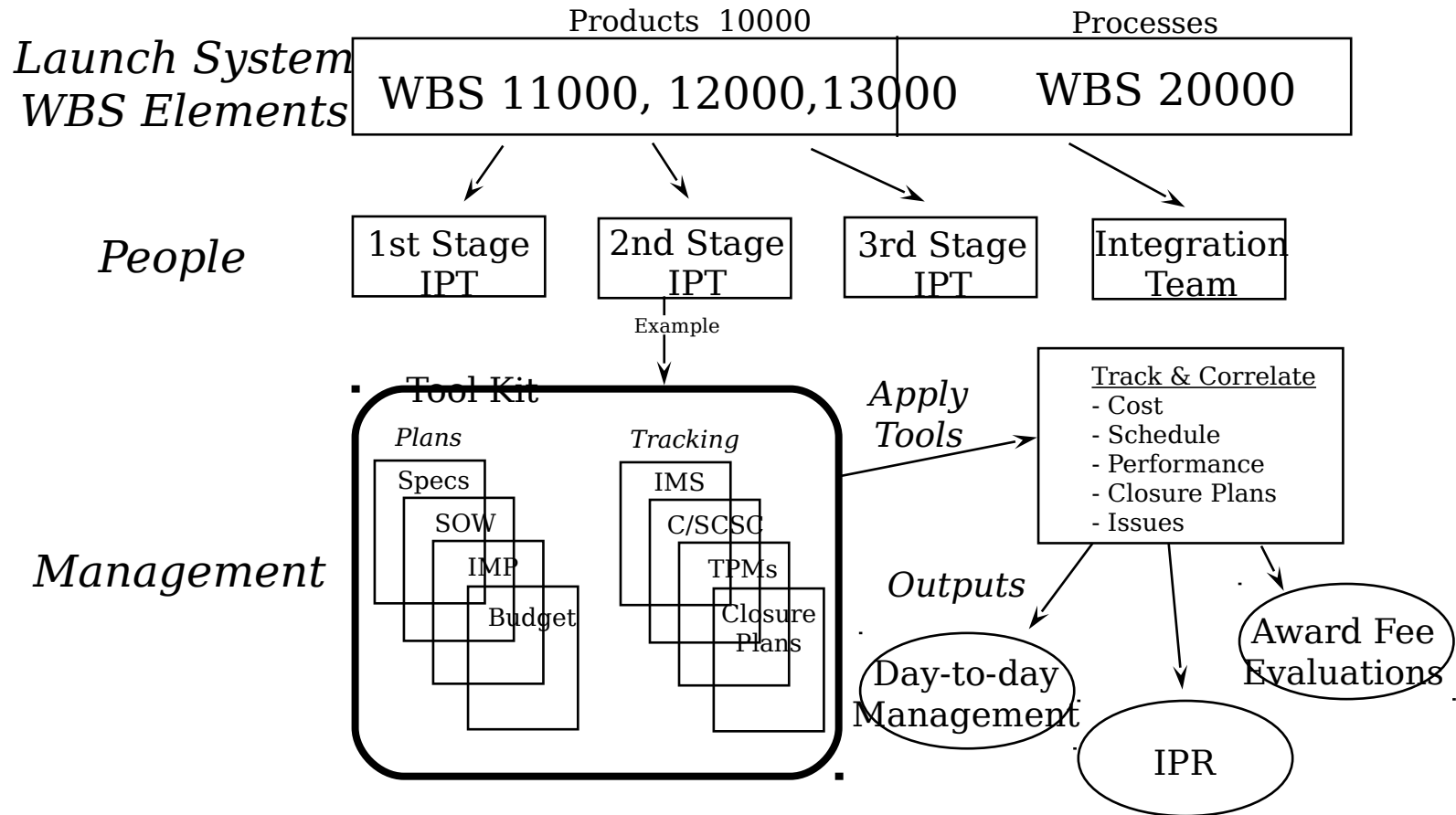
- PROVIDES FOR MEASURABLE AND TRACEABLE PROGRAM
 - CONCENTRATE EFFORT ON PROGRAM PRODUCTS
 - THE GOVERNMENT AND CONTRACTOR MANAGE TO IMP and IMS
- OFFEROR PLANS AND COMMITS TO AN EXECUTABLE PROGRAM
 - OFFEROR PROPOSES A PROGRAM PLAN (IMP/IMS) BEFORE CONTRACT AWARD, USED AS PARTIAL BASIS FOR AWARD
 - THE OFFEROR'S INTEGRATED MASTER PLAN (IMP) IS CONTRACTUAL
 - FAIR CONTRACTUAL ARRANGEMENT FOR GOVERNMENT AND CONTRACTOR
 - LINK RESOURCES TO PRODUCTS
 - LINK PRODUCTS TO IPT TEAM MEMBERS

RFP - PROPOSAL - CONTRACT



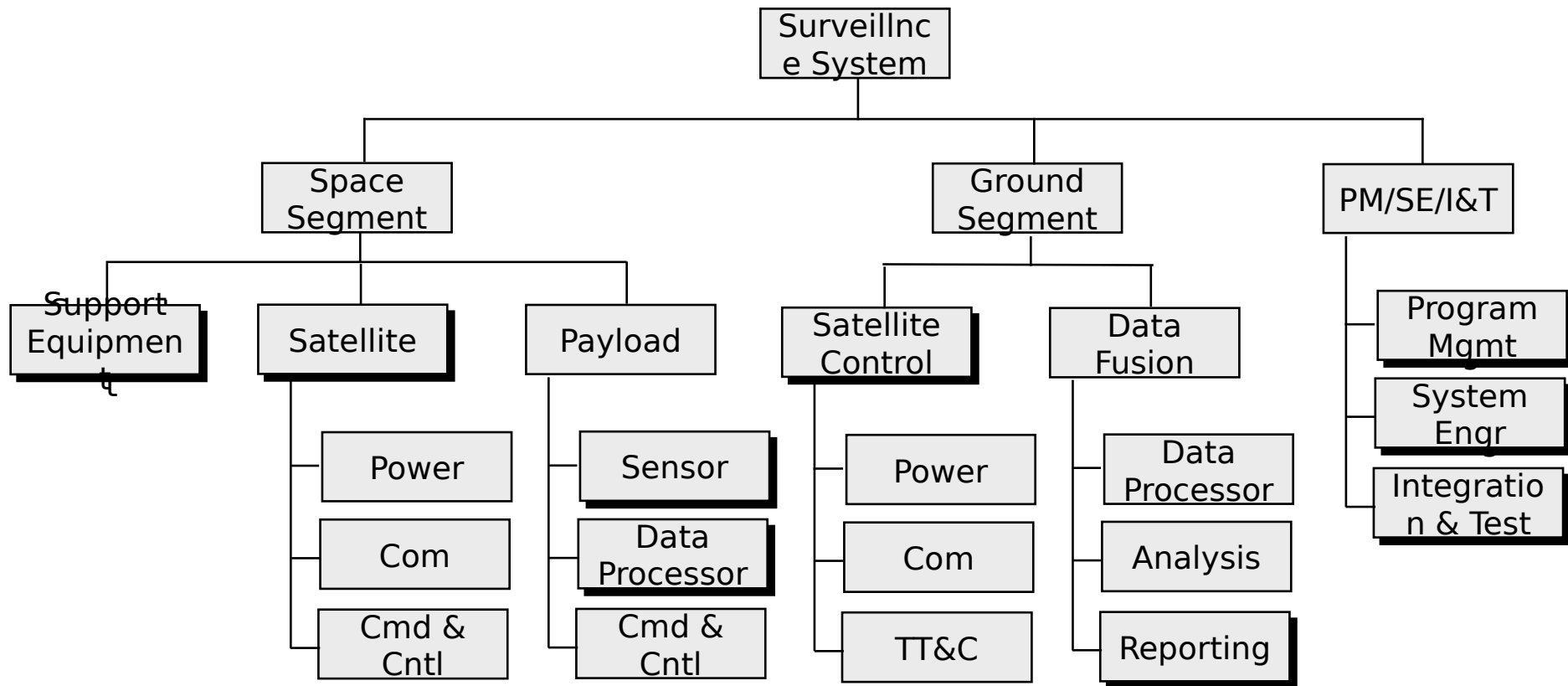


SEAMLESS IPD TOOLS





WBS



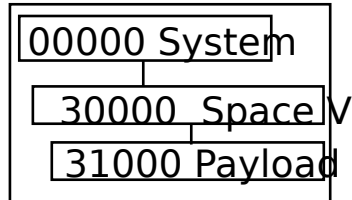
IMF

Government
Products

Government
Samples

Offeror's
Products

WBS



Performance
Req'ts

Dictionary

30000 Space Vehicle
31000 Payload
:

CLINs

Statement
of
Objectives

System Spec

31000: The Payload shall detect specified targets with 90% accuracy, 99.9% reliability and 85% availability.

Statement of Work

31000: The Contractor shall develop, mfg, test, and integrate the payload according to specified performance.

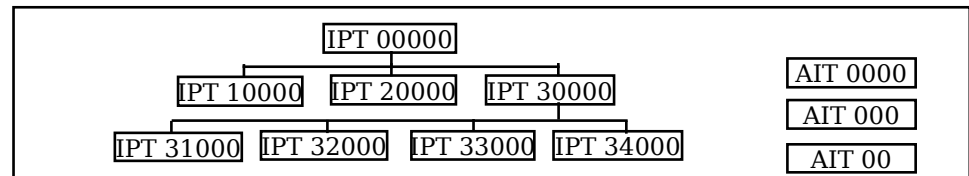
Integrated Master Plan

WBS	Events	Significant Accomplishments	Accomplishment Criteria
31000	PDR X	1. Prelim Design complete	1a. Subsys performance reqts allocated b. Duty cycle defined c. Prelim drawings released

Integrated Master Schedule

WBS	Detailed Task	Program Events	19XX	19XX	19XX
31000	1a. Perform subsys analyses to define requirements b. Analyze loads to define duty cycles c. Complete system and subsys drawings				PDR

Integrated Product Teams

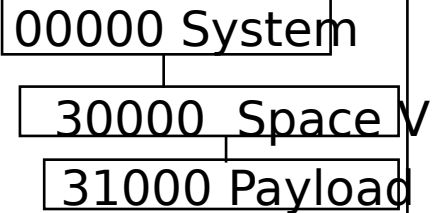


Integration aspect accomplished with common numbering system.



WBS-IMP-IMS-IPT

WBS



Dictionary

30000 Space Vehicle
31000 Payload

Integrated Master Plan

WBS	Events			Significant Accomplishments	Accomplishment Criteria
	PDR				1a. Subsys perf reqts alloc b. Duty cycle defined c. Prelim drawings released
31000	X			1. Prelim Design complete	

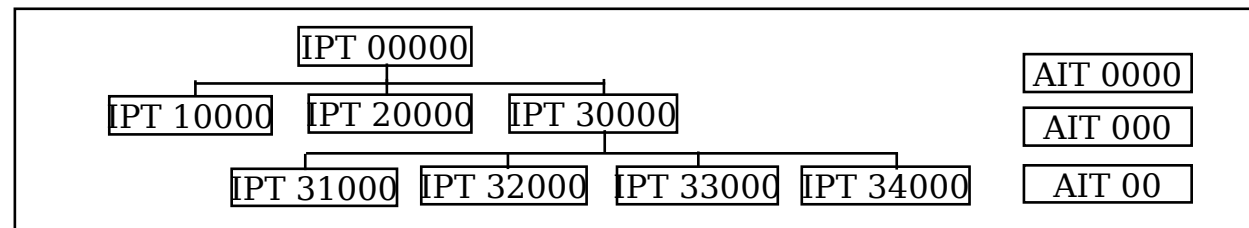


Integrated Master Schedule

WBS	Detailed Task	Program Events	19XX	19XX	19XX
					PDR
31000	1a. Perform subsys analyses to define requirements b. Analyze loads to define duty cycles c. Complete system and subsys drawings		▲	▲	▲



Integrated Product Teams



AIT - Analysis & Integration Teams



TWO PARTS TO THE IMP

IMP

WBS	Events			Signfcant Accomplshmnts	Accomplishment Criteria
31000	PDR			1. Prelim Design complete	1a. Subsys perf reqts alloc
	X				b. Duty cycle defined c. Prelim drawings release
WBS	Events			Signfcant Accomplshmnts	Accomplishment Criteria
31000		CDR		1. Critical Design complete	1a. Subsys design complete
		X			b. Rqmts alloc to design c. Detailed drwings release

IMP
NARRATIVE

CRITICAL PROCESS

OBJECTIVE

GOVERNING DOCUMENTATION

PROCESS DESCRIPTION

SOW REFERENCE



IMP FEATURES

Key Events - Activities to Meet Technical and Contract

Requirements

Initiation/conclusion of an interval of major program activity. Decision-point relating system maturity with continued system development.

Significant Accomplishment

A specified result substantiating an event that indicates a level of design maturity (or progress) for each product/process. Generally a discrete step in the progress of the planned development.

Demonstrates that the design and production of products are successfully maturing.

Accomplishment Criteria

Definitive measure(s) substantiating the maturity level of the significant accomplishment. It is the completion of specified work that ensures closure of a specified "Significant Accomplishment."

Narrative

A concise description of the Offeror's key functional processes/procedures, how they relate to the IPD process, and an overview of the efforts required to implement them.

Address only the key elements of implementing or developing a process/procedure (i.e., what the process/procedure will be or how it will be implemented).

Descriptions of the overall approach to executing tasks for which there may be no specific

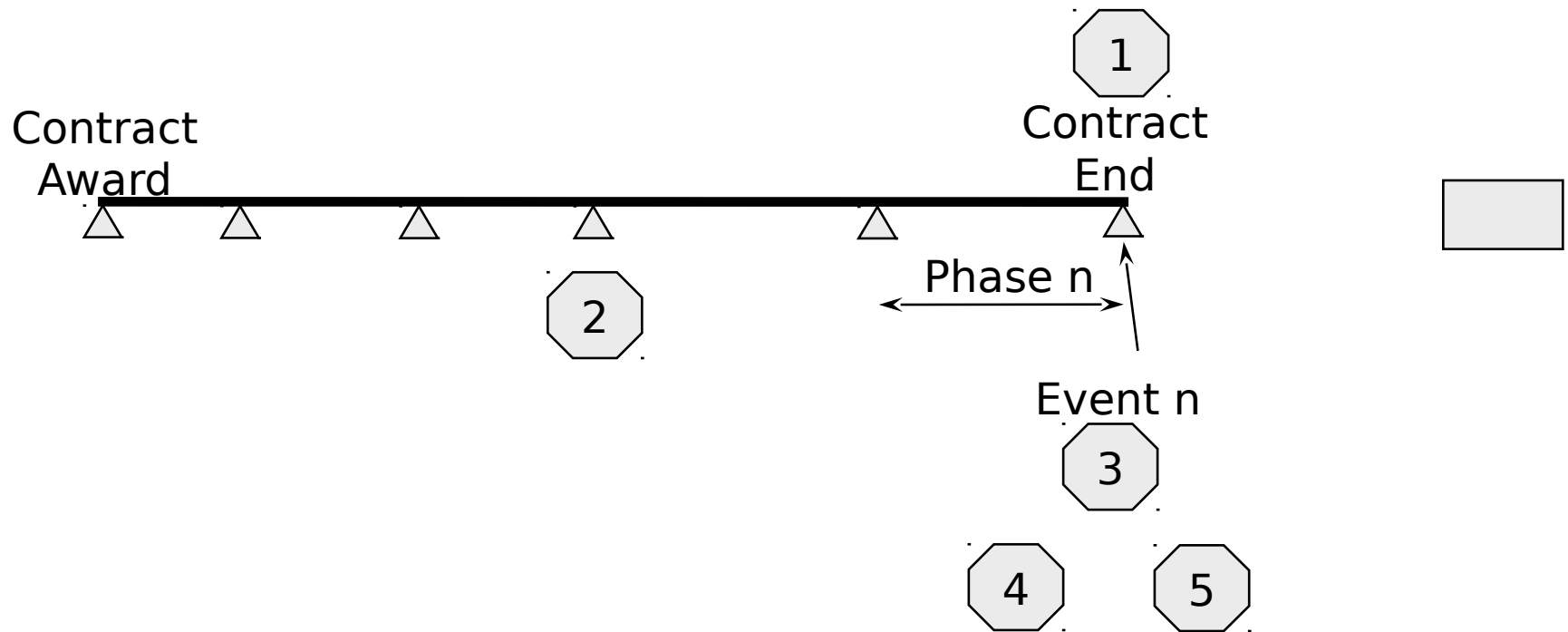


IMP ATTRIBUTES

- Expands and compliments SOO, Perf Rqmts, WBS, & SOW
- Incorporates Risk ID and Assessment
 - Level of detail consistent with risk and complexity
- Provides for Evaluation of Program Maturity
- Integrates Functional Activities
- Incorporates Major Sub-Contractor IMP
- Accomplishes Integrated Product Development
- Provides insight into the overall effort



NOTIONAL DEVELOPMENT OF CONTRACT IMP



- 1 - Define contract objectives (i.e., products) starting with top level of
- 2 - Breakup into manageable number of phases (i.e., events)
- 3 - Define significant accomplishments for each phase (i.e., entrance
- 4 - Identify critical processes
- 5 - Expound with narrative paragraphs

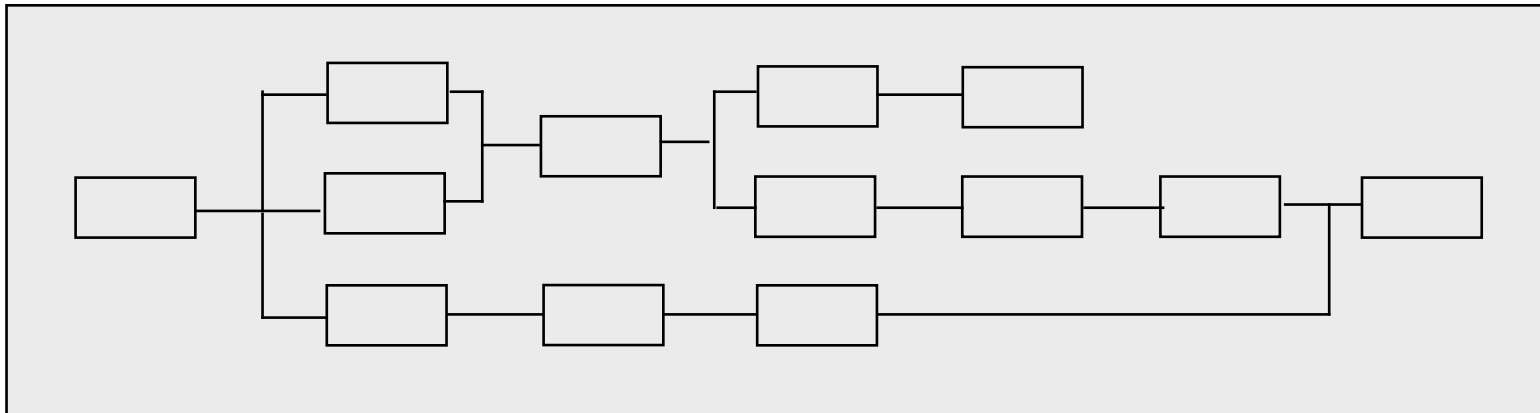


TWO VIEWS OF THE IMS

IMS SCHEDULE

WBS	Detailed Task	Program Events	19XX	19XX PDR	19XX
31000	1a. Perform subsys analyses to define rqmts b. Analyze loads to define duty cycles c. Complete system and subsys drawings		△	△	
WBS	Detailed Task	Program Events	19XX	19XX	19XX CDR
31000	1a. Perform subsys detailed design b. Trace rqmts to subsystem components c. Detailed drawings of subsystem comp			△	△

IMS NETWORK





IMS FEATURES

- INTEGRATED, NETWORKED, MULTI-LAYERED SCHEDULE SHOWING HOW EACH ACCOMPLISHMENT WILL BE ACHIEVED
 - DETAIL TASKS/WORK TO BE COMPLETED IN SUPPORT OF ACCOMPLISHMENT
 - CALENDAR SCHEDULE SHOWS DATES OF COMPLETION OF WORK EFFORT
 - NETWORK SCHEDULE SHOWS INTERRELATIONSHIPS AND CRITICAL PATH
- RESOURCE LOADING
- CDRL ITEM, NOT CONTRACTUAL SCHEDULE - - CONTRACTOR HAS FLEXIBILITY TO ADJUST



IMS ATTRIBUTES

- CORRELATION OF IMS WORK WITH IMP ACTIVITIES
- PROVIDES VISIBILITY ON A FREQUENT (e.g., MONTHLY) BASIS
RISK AREAS WILL BE MORE FREQUENT (e.g., WEEKLY)
- IMPLEMENTS MEASURABLE AND TRACKABLE PROGRAM



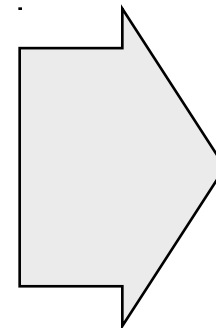
IPT TOOLS

- EVERY INDIVIDUAL/TEAM HAS A TOOL SET
- TOOL SET BEGINS WITH IDENTIFICATION OF A WBS ITEM
- TOOL SET INCLUDES:

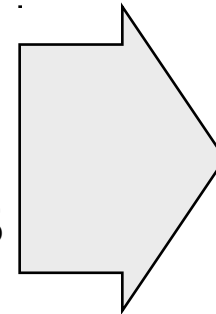
- WBS
- SPECIFICATION PARAGRAPH
- IMP SECTION
- BUDGET

-
- C/SCS
 - IMS SECTION
 - TECHNICAL PERFORMANCE MEASURES
 - CLOSURE PLANS

-
- AWARD FEE



PLAN
AND
COMMIT



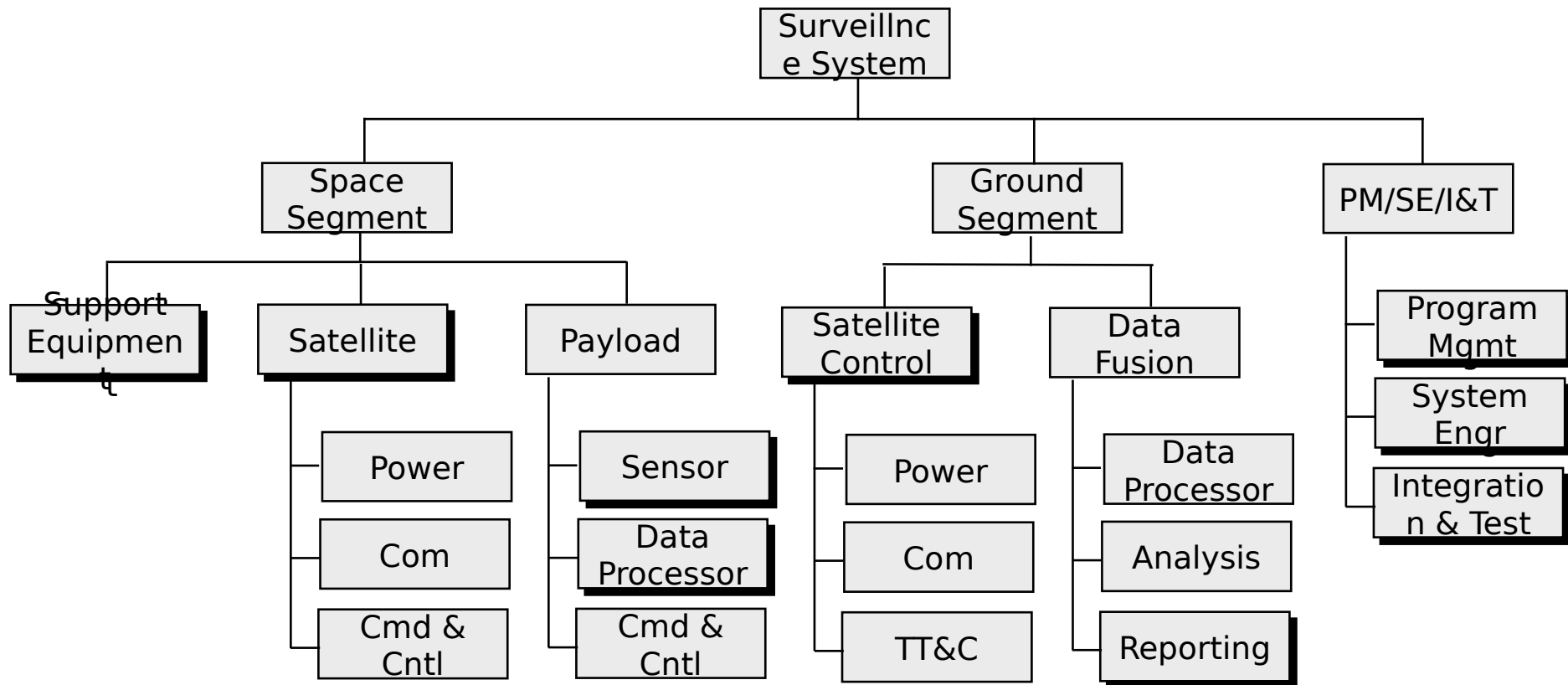
TRACK



MOTIVATE



APPROACH TO CONDUCTING REVIEWS





SUMMARY

- IMF PROVIDES A DISCIPLINED APPROACH TO PLANNING, ORGANIZING, AND DIRECTING THE PROGRAM
- RELIES ON AND MAXIMIZES GOVERNMENT INDUSTRY TEAMING
- FOCUSES ALL PROGRAM ACTIVITY ON PRODUCTS
- CREATES TRACKABLE PROGRAM - CONCENTRATING RESOURCES